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10/089,925	08/09/2002	Tetsujiro Kondo	450101-03408	1206

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NEW YORK, NY 10151

EXAMINER	
STORM, DONALD L	
ART UNIT	PAPER NUMBER
2626	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/01/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/089,925	KONDO ET AL.	
	Examiner	Art Unit	
	Donald L. Storm	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-15 and 39-53* is/are allowed.

6)☒ Claim(s) *16-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Allowable Subject Matter

2. Claims 1-15 and 39-53 are allowed.

Claim Informalities

3. Claim 16, and by dependency claims 17-26, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "said speech syntheses filter" (last line) needs clarification. Because no speech syntheses filter was previously said, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phase as --said speech synthesis filter--.

4. Claim 21, and by dependency claim 22, are objected to under 37 CFR 1.75(a) because the meaning of the phrase "said class tap" (page 12, line 2) needs clarification. Because no class tap was previously said, it may be unclear as to what element this phrase refers. To further timely prosecution and evaluate prior art, the Examiner has interpreted this phase as --said class taps--.

5. Claim 26 is objected to using the same rationale as in the prior Office action (mailed September 26, 2006), namely not clearly including the whole of the device set forth in the claim to which it depends.

6. Claim 27 is objected to for the same reasons as claim 16 because the limitations are recited using obviously similar phrases.

7. Claim 28 is objected to for the same reasons as claim 16 because the limitations are recited using obviously similar phrases.

Claim Rejections - 35 USC § 102

Tsushima

8. Claims 29-35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsushima et al. [US Patent 5,978,759] using the same rationale as in the prior Office action (mailed September 26, 2005) with reference to the previous Office action (mailed April 13, 2006).

Claim Rejections - 35 USC § 103

Tsushima and APA

9. Claims 16-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. [US Patent 5,978,759], already of record, in view of the admitted prior art of the specification (APA).

10. Regarding claim 16, Tsushima [at columns 3-4] describes an embodiment in which a preset code is the basis for generating filter data for LPC speech synthesis. Tsushima describes the content and functionality of the recited limitations recognizable as a whole to one versed in the art as the following terminology:

a preset code [at column 4, lines 11-30, as created, codebook, spectral envelope codes];

code decoding means for decoding it to output decoded filter data [at column 4, lines 51-60, as linear mapping function calculator converts spectral envelope parameters correspondent to the linear spectral code and outputs them];

acquisition means for acquiring preset tap coefficients as found by carrying out learning [at column 4, lines 15-54, as selector selects spectral envelope codes corresponding to minimum distance to code in codebook created by assigning parameters to parameter subspaces];

means for carrying out preset calculations, using the tap coefficients and the decoded filter data, to find prediction values of the filter data [at column 3, lines 47-column 4, line 15, as the spectral envelope converter converts spectral envelope parameters, using spectral envelope parameters of filter coefficients of a filter and the linear mapping function obtained from the spectral envelope codebook, into wider-bandwidth spectral envelope parameters];

the calculations are predictive by a prediction means [at column 4, line 61-column 5, line 29, as spectral envelope codes and corresponding linear mapping functions were learned by linear predictive word speech analysis to LPC parameters and a word speech mapped into the subspace of linear mapping functions];

and send the found prediction values to speech synthesis for use in speech synthesis [at column 3, lines 55-57, as the output of the spectral envelope converter used by an LPC synthesizer to synthesize a speech signal].

Tsushima [at column 3, lines 13-58] uses conventional LPC analysis and synthesis; however, Tsushima does not provide details of LPC procedures. In particular, Tsushima does not explicitly describe a synthesis filter that uses the LP coefficients.

The APA [at pages 1-4] describes conventional LPC synthesis, including:

send found prediction values to a speech synthesis filter for use as LP coefficients in the filter [at page 2, line 7-page 3, line 4, as find linear prediction coefficients for the linear prediction coefficients from the vector quantizer as tap coefficients of the speech synthesis filter].

As indicated, the APA shows that finding linear prediction coefficients and supplying linear prediction coefficients as tap coefficients of the speech synthesis filter was known to

artisans at the time of invention. The system by Tsushima requires LPC synthesis, but merely any conventional LP analysis and synthesis. To the extent that Tsushima does not necessarily include linear prediction coefficients as tap coefficients of the speech synthesis filter, it would have been obvious to one of ordinary skill in the art of speech processing at the time of invention to include conventional concepts as Tsushima suggests, at least finding and supplying linear prediction coefficients as tap coefficients of the speech synthesis filter, because linear prediction coefficients as tap coefficients of the speech synthesis filter would provide the conventional LPC speech synthesis with which Tsushima's system operates.

11. Claims 17-25 are rejected using the same rationale as in the prior Office action (mailed September 26, 2005) with reference to the previous Office action (mailed April 13, 2006).

12. Claim 27 sets forth a method with limitations comprising the functionality associated with using the device recited in claim 16. Because Tsushima and the APA describe and make obvious the similar limitations as indicated there, this claim thus is unpatentable accordingly.

Tsushima and APA and Omori

13. Claims 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. [US Patent 5,978,759], already of record, the admitted prior art of the specification (APA), and Omori et al. [Japan Application Publication Number 2000-134162], already of record.

14. Regarding claim 26, Tsushima and APA describe and make obvious the included claim elements by dependency as indicated elsewhere in this Office action. Tsushima, the APA, and

Omori describe the additional claim elements and make obvious the whole invention of this claim using the same rationale as in the prior Office action (mailed September 26, 2005).

15. Claim 28 sets forth limitations similar to limitations set forth in claim 27. Tsushima and APA describe and make obvious those similar limitations as indicated there. However, Tsushima and the cited APA do not explicitly describe a system embodiment having a recording medium with a program of the steps.

Like Tsushima, Omori [at columns 8-9 and 13-14] describes a speech bandwidth expanding receiver, and Omori describes:

a recording medium (of the steps) [at column 8, line 30, as the signal processor of the device];

a program (of the steps) [at column 18, line 38, as program and step(s)];

As indicated, Omori had described a recording medium having a program of steps for bandwidth expansion of speech at the time of invention. To the extent that a programmed processor is not necessarily in Tsushima's system in view of the APA, it would have been obvious to one of ordinary skill in the art of implementing functional descriptions of operations at the time of invention to include the concept of signal processor media used with program instructions to implement the processing functions of Tsushima because that would have provided the best implementation under particular circumstances identified and evaluated by a skilled artisan. For example, it is within the ordinary skill of an artisan to determine that software elements, such as Omori used, benefits changing processing functions or adding other processing functions because software elements are more easily modified than hardware elements.

Tsushima and Omori

16. Claims 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsushima et al. [US Patent 5,978,759] in view of Omori et al. [Japan Application Publication Number 2000-134162], both already of record.

17. Regarding claim 36, Tsushima describes the included claim elements by dependency as indicated elsewhere in this Office action. Tsushima and Omori describe the additional claim elements and make obvious the whole invention of this claim using the same rationale as in the prior Office action (mailed September 26, 2005).

18. Claim 38 sets forth limitations similar to limitations set forth in claim 37, with additional limitations similar to the additional limitations of claim 28. Tsushima and Omori describe and make obvious the limitations as indicated there.

Response to Arguments

19. The prior Office action, mailed September 26, 2006, objects to the claims, and rejects claims under *35 USC § 102* and *§ 103*, citing Tsushima and Omori. The Applicant's arguments and changes in RESPONSE UNDER 37 C.F.R. §1.121, filed December 13, 2006, have been fully considered with the following results.

20. With respect to objection to claims 20 and 21 as needing clarification, amendments remove the indicated grounds of objection. Accordingly, the objections are removed. Please see new grounds of objection.

21. With respect to objection to claim 26, the Applicant's arguments appear to be as follows:

The Applicant's argument appears to be that the additional limitation of claim 26 further limits the preset code initially set forth in claim 16. This argument is not persuasive because the phrase "The data processing" (claim 26, line 1) lacks definite antecedent basis in the claim or in claim 16, to which claim 26 is dependent. Further limiting the preset code does not resolve the lack of definite antecedent basis for the "The data processing". Which data processing of claim 16 included into claim 26 cannot be readily determined. Further, claim 16 does not actively and positively set forth that any data processing actually occurs in the claim's subject matter.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the objection is maintained.

22. With respect to rejection of claims 14 and 15 under *35 USC § 102* and *§ 103*, citing Tsushima alone and in combination, the changes entered by amendment include subject matter previously indicated as allowable in the current independent claims. Accordingly, the rejections are removed.

23. With respect to rejection of claims 16-28 under *35 USC § 102* and *§ 103*, citing Tsushima alone and in combination, the changes entered by amendment include the use of prediction values a linear prediction coefficients in a speech synthesis filter. The reference Tsushima does not explicitly describe that limitation and the current combination with Omori does not make such a limitation obvious compared to the prior art of record. Accordingly, the rejections are removed. Please see new grounds of rejection.

24. With respect to rejection of claims 29-38 under *35 USC § 102* and *§ 103*, citing Tsushima and Omori in combination, the Applicant's arguments appear to be as follows:

a. The Applicant's argument appears to be that Tsushima's description of converting spectral envelope parameters comprised of an feature vector having p spectral envelope parameters as vector elements and a mapping codebook of M functions, each of which function corresponds to a spectral envelope code of a spectral envelop codebook is not the same as predictive calculations to find the values as prediction values, as recited in the claims. This argument is not persuasive because Tsushima [at column 4, line 61-column 4, line 29] describes LPC (linear predictive coding) as the learning method that produces the LPC parameters and the linear mapping functions.

b. The Applicant's argument appears to be that Omori qualifies as prior art only under sections (e), (f), and/or (g) of 35 USC § 102. This argument is not persuasive because Omori et al. [Japan Application Publication Number 2000-134162] qualifies as prior art under section (a) of 35 USC § 102.

The Applicant's arguments have been fully considered but they are not persuasive. Accordingly, the rejections are maintained.

25. With respect to rejection of claims 46-53 under *35 USC § 102* and *§ 103*, citing Tsushima alone and in combination, the changes entered by amendment include prediction taps extracted from synthesized sound, a preset code, and information derived from the code The whole structure and interaction expressed by the combination of all limitations is not made obvious compared to the prior art of record for the whole invention of the independent claims, particularly with class tap extraction for finding/sorting speech to a class. Accordingly, the rejections are removed.

Conclusion

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

27. Any response to this action may be mailed to:

Mail Stop AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(571) 273-8300, (please mark "EXPEDITED PROCEDURE"; for formal communications and for informal or draft communications, additionally marked "INFORMAL" or "DRAFT")

Some patent correspondence and/or fees may be submitted using the Office's electronic filing system (EFS). See the Office's Internet Web site for additional information, for example http:// www. USPTO. gov/ ebc/ ebc_faqs. htm.

Some patent correspondence may delivered by hand or delivery services, other than the USPS, addressed as follows and brought to U.S. Patent and Trademark Office, Customer Service Window, **Mail Stop Amendment**, Randolph Building, 401 Dulany Street, Alexandria, VA 22314

28. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald L. Storm, of Division 2626, whose telephone number is (571) 272-7614. The examiner can normally be reached on weekdays between 7:00 AM and 3:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Inquiries regarding the status of submissions relating to an application or questions on the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 571-272-4100 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at: ebc@uspto.gov. For general information about the PAIR system, see http://pair-direct.uspto.gov. If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Donald L. Storm
DONALD L. STORM
PRIMARY PATENT EXAMINER

January 31, 2007